



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI

GOVERNOR

DAVID P. LITTELL

COMMISSIONER

**Maritimes & Northeast Pipeline, LLC
Cumberland County
Westbrook, Maine
A-957-71-B-A**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Maritimes & Northeast Pipeline, LLC (M&N) located in Westbrook, Maine was issued Air Emission License A-957-71-A-N on February 5, 2007 permitting the operation of emission sources associated with their gas compressor station.
2. M&N has requested an amendment to their license to provide revised and updated emissions information for this facility. M&N has refined earlier estimates for potential emissions associated with both combustion and non-combustion sources, as well as natural gas releases that may occur. The following changes are addressed in this amendment:
 - a. The inclusion of a meter station in the total facility emissions;
 - b. Updating VOC emissions estimates to reflect the actual VOC content of the gas;
 - c. Recalculation of potential gas release and fugitive VOC emissions based on updated construction drawings;
 - d. Recalculation of compressor turbine emissions to reflect new startup/shutdown (SU/SD) emissions data from the vendor, adjustment of the number of SU/SD events anticipated for year, and a revised approach for selection of representative ambient temperature data for M&N facilities statewide;
 - e. Recalculation of Generator #1 emissions based on the actual size of the generator installed; and
 - f. Removal of Heater #1 from the license.

AUGUSTA

17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 760-3143

B. Emission Equipment

This amendment includes revisions to the following equipment:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>
Generator #1*	5.02	4,920	Natural Gas	3

*Previously licensed at 11.8 MMBtu/hr.

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Sig. Level</u>
PM	7.9	7.6	-0.3	100
PM ₁₀	7.9	7.6	-0.3	100
SO ₂	3.8	3.8	-0-	100
NO _x	64.7	63.7	-1.0	100
CO	74.1	83.1	+9.0	100
VOC	23.7	49.0	+25.3	50

This modification is determined to be a minor modification and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). Separate control requirement categories exist for new and

existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Metering Station

An existing natural gas metering station, known as the PNGTS Inlet Meter Station, was constructed in 1998-1999. The PNGTS Inlet Meter Station is located approximately 1,000 feet and downhill from the compressor station. M&N wishes to include the PNGTS Inlet Meter Station in the facility potential to emit (PTE). The only emissions associated with this equipment come from natural gas releases associated with periodic "blowdowns" in which the gas is evacuated to the atmosphere for routine operation or maintenance purposes, purging of the lines following blowdowns, gas releases associated with the operation of pneumatic equipment, and from fugitive sources.

C. Current Gas Analysis

In their original license application, M&N used the VOC content from a typical natural gas analysis to calculate emissions. M&N proposes to update those calculations to reflect the VOC content from the most recent analysis of the gas stream actually flowing through its pipeline. VOC emissions based on the recent gas analysis increased from those in the original application.

D. Updated Construction Drawings

Fugitive emissions of VOC occur from leakage of valves, pump and compressor seals, connectors, flanges, etc. Quantification of VOC emissions from periodic blowdown and fugitive sources was originally based on an estimate of the number and size of the components in a similar existing compressor station. These estimates have been revised to reflect the actual counts and capacities of station components that are shown on the final construction drawings.

E. Compressor Turbine Emissions

M&N has requested revisions to the PTE based on revised estimates for emissions during SU/SD from the manufacturer, updated information concerning the number and duration of SU/SD, and the assumptions concerning the frequency of occurrence of low ambient temperatures.

Early this year Solar Turbines, the compressor turbine/compressor unit vendor, issued revised emission rates for its compressor turbines. This amendment incorporates these revised emission rates. In addition, M&N operations personnel have re-evaluated the likely number of SU/SD events that occur annually and have determined that 65 SU/SD events per year per compressor unit is a more representative number (as opposed to the previously licensed 104 events per year).

Maximum hourly compressor turbine emissions are dependent upon the ambient temperature. M&N has reevaluated the data used. M&N has determined that data from Bucksport, Maine was the most appropriate. The use of the Bucksport temperature data slightly increases the annual PTE for all pollutants.

F. Generator #1

The existing license includes a natural gas-fired emergency generator with a rated heat input capacity of 11.23 MMBtu/hr. Emission estimates were based on specifications for a Caterpillar G3516 TA LE-130 reciprocating engine.

M&N has requested a modification to their license to reflect the unit actually installed, a Waukesha VGF24GL 4-stroke, natural gas-fired, lean-burn, low emitting reciprocating engine. This engine (Generator #1) has a nominal rating of 395 kW, a rated heat input capacity of 4.55 MMBtu/hr, and a fuel firing rate of 4,457 scf/hr.

A summary of the BACT analysis for Generator #1 is the following:

1. Generator #1 shall fire only natural gas.
2. Generator #1 shall be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. All emissions are based on use of 110% capacity factor for calculating potential short-term emissions.
4. Chapter 103 regulates particulate matter emissions from combustion sources, however in this case a BACT analysis for PM determined a more stringent limit of 0.01 lb/MMBtu (based on AP-42 data dated 7/00) was appropriate and shall be used. The PM₁₀ limits are derived from the PM limits.
5. SO₂ emission limits are based on AP-42 data dated 7/00.
6. NO_x, CO, and VOC emission limits are based upon vendor supplied data.

7. Visible emissions from Generator #1 shall not exceed 10% opacity on a 6-minute block average.

G. Heater #1

Heater #1 was originally licensed with a maximum capacity of 2.7 MMBtu/hr. The actual unit installed has a maximum capacity of less than 1.0 MMBtu/hr and is therefore considered an insignificant activity. Therefore, Heater #1 has been removed from this license.

H. VOC RACT

Although total licensed VOC emissions will exceed 40 ton/year, all VOC emitting equipment has received BACT and is therefore exempt from *Reasonably Available Control Technology for Facilities that Emit Volatile Organic Compounds*, 06-096 CMR 134 per Section A.C.2.

I. Annual Emissions

M&N shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Turbines	7.5	7.5	3.8	62.0	82.0	8.0
Generator #1	--	--	--	0.6	0.5	0.2
Boiler #1	0.1	0.1	--	1.1	0.6	0.1
Gas Releases & Fugitives	--	--	--	--	--	40.7
Total TPY	7.6	7.6	3.8	63.7	83.1	49.0

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-957-71-B-A subject to the conditions found in Air Emission License A-957-71-A-N and in the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

The following shall replace Conditions (16)(A) and (16)(B) of air emission license A-957-71-A-N:

(16) Turbines #1 and #2

- A. Except during periods of start-up and shut-down, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures greater than 0°F:

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	0.92	0.01	06-096 CMR 115, BACT
PM ₁₀	--	0.92	0.01	06-096 CMR 115, BACT
SO ₂	--	0.48	--	06-096 CMR 115, BACT
NO _x	15	7.55	--	06-096 CMR 115, BACT
CO	--	7.66	--	06-096 CMR 115, BACT
VOC	--	0.9595	--	06-096 CMR 115, BACT

- B. Except during periods of start-up and shut-down, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures less than or equal to 0°F:

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	0.95	0.01	06-096 CMR 115, BACT
PM ₁₀	--	0.95	0.01	06-096 CMR 115, BACT
SO ₂	--	0.49	--	06-096 CMR 115, BACT
NO _x	150	62.21	--	40 CFR 60, Subpart KKKK and Chapter 115, BACT
CO	--	47.34	--	06-096 CMR 115, BACT
VOC	--	2.9640	--	06-096 CMR 115, BACT

Condition (21) of air emission license A-957-71-A-N is deleted.

The following shall replace Condition (26) of air emission license A-957-71-A-N:

(26) **Boiler #1**

A. Boiler #1 shall fire only natural gas. [06-096 CMR 115, BACT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.08	06-096 CMR 115, BACT

C. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.03	0.03	0.29	0.15	0.03

D. Visible emissions from Boiler #1 shall not exceed 10% opacity on a six (6) minute block average basis except for one (1) six (6) minute average in a three (3) hour period. [06-096 CMR 101]

The following shall replace Condition (27) of air emission license A-957-71-A-N:

(27) **Generator #1**

A. M&N shall limit Generator #1 to 500 hr/yr of operation (based on a 12 month rolling total). [06-096 CMR 115, BACT]

B. Generator #1 shall be equipped with an elapsed time meter. The value from the meter will be entered into a spreadsheet on a monthly basis. The spreadsheet will track operating hours on a monthly and a 12 month rolling total basis. [06-096 CMR 115, BACT]

C. Generator #1 shall fire only natural gas. [06-096 CMR 115, BACT]

D. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #1	PM	0.01	06-096 CMR 115, BACT

E. Emissions shall not exceed the following [MEDEP Chapter 115, BPT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1	0.05	0.05	2.58	2.26	0.9673

F. Visible emissions from the Generator #1 shall not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period. [06-096 CMR 115, BACT]

The following shall replace Condition (29) of air emission license A-957-71-A-N:

(29) **Annual Emissions**

A. Total emissions from licensed equipment shall not exceed the following on a 12 month rolling total basis [06-096 CMR 115, BACT]:

	Ton/year
PM	7.6
PM ₁₀	7.6
SO ₂	3.8
NO _x	63.7
CO	83.1
VOC	49.0

B. M&N shall keep monthly records sufficient to document the facilities emissions on a 12 month rolling total basis and shall make those records available to the Department upon request. [06-096 CMR 115, BACT]

Condition (33) of air emission license A-957-71-A-N is deleted.

The following are New Conditions:

(34) VOC Cap Compliance Assurance

M&N shall maintain the following records to demonstrate compliance with its annual VOC cap [06-096 CMR 115, BACT]:

- A. M&N shall track the actual operating hours and fuel use for the two turbines and calculate on a monthly basis actual VOC emissions from the burning of natural gas in the turbines.
- B. M&N shall maintain a log that contains the following information for all turbine case ventings, ESD events, maintenance blowdowns, gas purges, and liquid purges:
 - 1. Date of the event;
 - 2. Estimated or actual event start time;
 - 3. Estimated or actual event duration;
 - 4. Release point ID;
 - 5. Gas release source ID;
 - 6. Gas release type (e.g. turbine case venting, ESD, blowdown, purge);
 - 7. Event type (e.g. shutdown, maintenance, testing, or malfunction);
 - 8. Description of event;
 - 9. Estimate of the volume of natural gas vented;
 - 10. Estimate of the VOC density of the released gas; and
 - 11. Calculation of the tons of VOC emitted based on the VOC content of the gas released.
- C. M&N shall check for the presence of pipeline liquids on a monthly basis and calculate actual fugitive emissions associated with this source monthly.
- D. M&N shall perform an audit of the compressor station, once construction is complete, develop, and maintain an inventory of actual piping components by type for each service category. This inventory shall be used in calculating actual emissions from these components.
- E. M&N may implement a Leak Detection and Repair ("LDAR") Program to assist in demonstrating compliance with the facility's VOC emission limit. The LDAR Program will be designed to identify equipment components that emit sufficient amounts of VOC to warrant reduction of emissions through detection and repair of leaks. If use of an LDAR program is necessary to demonstrate compliance with the proposed annual VOC emission limits contained in this license, M&N will submit to the Department of

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Environmental Protection a proposed LDAR program consistent with EPA protocol and guidance.

(35) **Metering Station**

The PNGTS Inlet Meter Station shall be included as part of M&N's facility and emissions from the Meter Station included in determining compliance with the facility's annual VOC emission limit. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 22nd DAY OF January, 2009.
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: James P. Brooks Jr.
DAVID P. LITTELL, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-957-71-A-N.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 9/19/08

Date of application acceptance: 9/30/08

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Ross, Bureau of Air Quality.

